

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 081462-9026	FOR FURTHER ACTION <small>see Form PCT/ISA/220 as well as, where applicable, item 5 below.</small>	
International application No. PCT/US04/06674	International filing date (<i>day/month/year</i>) 04 March 2004 (04.03.2004)	(Earliest) Priority Date (<i>day/month/year</i>) 23 January 2003 (23.01.2003)
Applicant INGERSOLL-RAND COMPANY		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☐ **Unity of invention is lacking** (See Box No. III)

4. With regard to the **title**,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

Telescoping Drilling Sub

5. With regard to the **abstract**,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 3



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

Due: 1-14-05

Form PCT/ISA/210 (first sheet) (January 2004)

DOCKETED

Date: 12-21-04 CB

Also on SAT's docket

COPY

INTERNATIONAL SEARCH REPORT

International application No.

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Box IV TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

A telescoping sub (50) for mining operations and the like. The telescoping sub (50) includes a rotor (94) portion couplable to the rotary head of a drilling rig, and a stator (74) portion that is couplable to a drill rod. The rotor (94) portion is slideably coupled to the stator (74) portion and is movable with respect thereto between an extended position and a retracted position. With the telescoping sub (50) in the retracted position, the drilling rig is operated to drill to a first depth. The drilling rig is then operated to move the rotor (94) portion to the extended position, and the drilling rig is operated to drill to a second depth that is greater then the first depth.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : E21B 17/07

US CL : 175/321; 166/242.7

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 175/321,322,57,320; 166/242.7,242.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 3,447,652 A (TIPTON) 3 June 1969 (03.06.1969), Figures 1, 3, 4, column 3 line 4- column 6, line 8.	1, 11-13, 15, 16, ----- 2-10, 14, 17-19
Y	US 4,196,781 A (CHECK) 8 April 1980 (08.04.1980), Figures 3-6, column 6 line 6- column 8 line 58.	14
Y	EP 376,239 A (SCHAUFENBE) 4 July 1990 (04.07.1990), Figures 5-8, 11.	2-10, 14, 17-19
A	US 3,194,330 A (WARE et al) 13 July 1965 (13.07.1965), whole document.	1-19
A	US 5,168,944 A (ANDERSSON) 8 December 1992 (08.12.1992), whole document.	1-19

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier application or patent published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

29 October 2004 (29.10.2004)

Date of mailing of the international search report

14 DEC 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US

Commissioner for Patents

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International application No.
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Continuation of B. FIELDS SEARCHED Item 3:
JPO, EPO, Derwent

Terms: drill(ing) rod, telescope(ing)